

Amendments to the Specification

Please add the following new heading and paragraph before paragraph [0001], and renumber all subsequent paragraphs.

Reference to related application

[0001] This is a formal application based on and claiming the benefit of provisional application no. 60/400,037, filed August 2, 2002.

Please replace the Fig. 44 description sub-paragraph within paragraph [0011] with the following amended paragraph:

Fig. 44 is a side view of the tool bit or accessory shown in Fig. 44 43.

Please replace paragraphs [0024], [0025], [0030], [0040], [0045], [0047] and [0051] with the following amended paragraphs:

[0024] The sleeve **24** may be manufactured in a variety of methods including pressing, powder metal, injection moulding, die-casting, machining or a combination thereof but in the preferred embodiment is a die-cast piece. The preferred embodiment further comprises an aligner **44** 45, formed on the internal diameter of the sleeve **24**, sized to fit within the alignment slot **48** in the first end **36** of the inner housing **12**. The aligner **44** 45 provides support when the chuck **10** is in use to prevent the sleeve **24** from unwanted rotational motion. The aligner also serves as a means to guide the sleeve when it is assembled over the inner housing.

[0025] When assembled to the inner housing **12**, the sleeve **24** is oriented so that the aligner **44** 45 is inserted into the alignment slot **48** with the internal cam **66** contacting the spring cap **28** covering the central tang **34**. The sleeve **24** fits over the entire inner

housing 12 to retain the spherical balls in the set of holes 52, the compression spring 14, and the aligner 44 45.

[0030] In the locked position, the chuck 10 is generally at rest. As can be seen in Figure 6, the inclined face 58 and the cross-section 60 in the second end 56 of the sleeve 24 rests atop the shoulder 50 of the inner housing 12 to retain the spherical balls within the holes 52. Furthermore, the first end 54 of the sleeve 24 rests against the tab 68 of the inclined plate causing the plate to be inclined against the inner face 72 of the end cap 26. Rotation of the shank in a counter clockwise direction causes the torsion spring 16 to further tighten its grip on the shank by decreasing the internal diameter of the spring-~~406~~.

[0040] The inner housing 102 also comprises an annular groove 121 for housing a retaining ring 123 (as shown in Figure 4 8) which prevents removal of the sleeve after assembly.

[0045] In order to change or remove the tool bit or accessory, the chuck 100 is placed in the open position. By retracting the sleeve 104 away from the tool bit or accessory, in the direction indicated by arrow 140, the shoulder 136 contacts the end tang 112 and directs the end tang 112 along the angular slot 120 towards the opposite end of the angular slot 120. Since the other end of the torsion spring 106 is restricted from moving by the inner housing (as shown in Figure 11), the torsion spring 46 106 is unwound as the end tang 112 is directed along the angular slot causing the internal diameter of the torsion spring 106 to increase. The movement of the sleeve 104 also causes the first end 114 of the inner housing 102 to protrude through the hole 125 in the sleeve 104. The increase in the internal diameter of the spring 106 causes the grip of the spring 106 on the shank to loosen, allowing the shank to be removed. After the shank has been removed, the user may place another shank into the inner housing 102 via the opening 125 in the sleeve 104 as schematically showed in Figure 13. Release of the sleeve by the user causes the chuck to return to the locked position and the internal diameter of

the torsion spring to decrease which allows the spring to grip the shank of the selected tool bit or accessory.

[0047] Figs. 30 to 48 show an alternative embodiment of the chuck using an inclined plate to capture the shank of a tool bit or accessory. This is similar in principle to the mechanism described in application no. **09/783,082**, filed February 15, 2001 and assigned to the present inventors' company, Maxtech Manufacturing Inc. In this embodiment, the chuck **200** has a sleeve **224** over an inner housing **201**, biased against an end cap **204** by a spring **202**, such as a compression, or biasing, spring. The inner housing **201** has a central channel for receiving and holding the shank of a tool bit or accessory. The end cap **204** is inserted into a central opening in the distal end of the inner housing **201**. The end cap **204**, shown in Figs. 47 and 48, has a central aperture **234** having a comparable size and to that of the shank **214** **212** of a tool bit or accessory **212** **211**. The end cap **204** has an inner surface, which is on an incline relative to the axis of the tool.

[0051] Figs. 39 and 40 show views of the inner housing. The inner housing **201** has a threaded central channel **203** for joining to the rotary tool, and a machined channel into which the shank **212** of a tool bit or accessory **211** fits. The outer surface of the inner housing **201** has an annular shoulder **205** where the compression spring **202** and the sleeve **224** fits over the inner housing. The inner housing **201** also has an end portion **210** with a central channel **226** into which the end cap **204** fits. The end portion **210** has two slots **207**, **208** in the housing, radially opposite one another. The first slot **207** is axially longer than the second slot **208**. The protuberances **222** **223** of the inclined plate **220** shown in Figs. 45 and 46, fit into these slots **207**, **208**. The protuberance in the first elongated slot **207** moves along the slot **207** when the sleeve **224** is retracted and released.